above, claims 21, 34, 36, 42-51, 58 and 59 have been cancelled. Applicant respectfully submits that independent claim 1 (as amended) and its dependent claims are allowable over Tsuji because Tsuji does not disclose, among other things, "a signal generator . . . transmitting optical signals . . . in response to input from a remote isolated circuit . . . generated by a user of the remote isolated circuit."

Regarding independent claim 60 (as amended), Applicant submits that Tsuji does not disclose, among other things, a method of isolating a remote circuit including the step of "converting the transmitted second light signal to an electrical input signal for the controller to cause the controller to perform a task corresponding to the remote circuit electrical output signal." New claims 71-73 include similar limitations. Accordingly, claim 60 and its dependent claims, and claims 71-73 should be allowed over Tsuji.

If necessary, Applicants request that this Response be considered a request for an extension of time for a time appropriate for the response to be timely filed. Applicants request that any required fees needed beyond those submitted with this Response be charged to the account of Bose McKinney & Evans, Deposit Account Number 02-3223.

Respectfully submitted,

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PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Group:	2873
Atty. Docket:	8266-0197
Applicant:	RILEY
Invention:	OPTICAL ISOLATION APPARATUS AND METHOD
Serial No.:	09/515,266
Filed:	February 29, 2000
Examiner:	Unknown

Certificate Under 37 CFR 1.8(a)

I hereby certify that this correspondence is being deposited via facsimile to the Commissioner for Patents, Washington, D.C. 20231

on June 13, 2002

Robert D. Null

Dated: June 13, 2002

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ATTACHMENT A

Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

In response to the Office Action mailed on March 14, 2002 ("Office Action") and pursuant to 37 C.F.R. 1.111, Applicants respectfully submit this ATTACHMENT A contemporaneously with a separate Response to Office Action ("Response") in connection with the above-identified patent application.

A marked-up version of the paragraph(s) of the specification and a marked-up version of the claims amended by the Response (additions underlined; deletions in brackets) is shown below. Any new claims are shown in the Response (not in this ATTACHMENT A).

IN THE CLAIMS:

1. An optical isolation device [for transmitting power and signals between a local source circuit and a remote isolated circuit, the optical isolation device] comprising:

[a light source for generating light];

an optical channel having a first end [on which the light impinges] and a second end [optically coupled to the first end];

a light source adjacent the first end for transmitting light through the optical channel;

[an opto-electrical] a detector adjacent the second end for producing electrical power when impinged upon by the transmitted light;

[an optical] a signal generator adjacent the second end powered by the electrical power [generated by] from the [opto-electrical] detector [and coupled to a remote isolated circuit], the [optical] signal generator [generating] transmitting optical signals through the optical channel in response to input [provided by the] from a remote isolated circuit, [the optical signals impinging upon the second end of the optical channel] the input being generated by a user of the remote isolated circuit; and

a [opto-electrical] sensor adjacent the first end [of the optical channel generating] for producing electrical signals in response to the optical signals[; and

wherein the light and optical signals are both propagated through the optical channel].

2. The [apparatus] device of claim 1 wherein the optical channel includes a fiber optic filament.

3. The [apparatus] device of claim 1 [and] further comprising a controller coupled to the light source and [optical signal generator controlling the generation of the light and optical signals] the sensor, the controller causing a task to be performed in response to receipt of the optical signals.

4. The [apparatus] device of claim [2] 1 [and] further comprising a lens adjacent the second end of the optical channel, the lens refracting both the optical [signal] signals and the light.

5. The [apparatus] device of claim 1 wherein the [opto-electrical] detector [includes] is an opto-electrical detector having a photovoltaic cell.

6. The [apparatus] device of claim 1 wh rein the [opto-electrical] detector includes an array of photonic devices.

7. The [apparatus] device of claim 6 wherein the photonic devices are photovoltaic cells.

8. The [apparatus] device of claim 7 [and] further comprising a lens adjacent the second end of the optical channel, the lens refracting both the optical [signal] signals and the transmitted light.

9. The [apparatus] device of claim 3 wherein the controller is further coupled to the signal generator, the controller inducing [induces] the light source to generate light in pulses having an on time and an off time and [induces] inducing the [optical] signal generator to generate optical signals during the off time of the light.

10. The [apparatus] device of claim 9 [and also] further comprising an electrical storage device electrically coupled to the [opto-electrical] detector.

11. The [apparatus] device of claim 1 wherein the intensity of the light source and the sensitivity of the [opto-electrical] detector are sufficient to satisfy the power needs of the remote isolated circuit and [optical] the signal generator.

12. The [apparatus] device of claim 1 wherein the light source generates light in a bandwidth centered about a first frequency, the [opto-electrical] detector is sensitive in a bandwidth including the first frequency, the [optical] signal generator [generates] generating optical signals in a bandwidth centered about a second frequency, and the [opto-electrical] sensor [is] being sensitive in a band width including the second frequency.

13. The [apparatus] device of claim 12 wherein the light source generates monochromatic light.

14. The [apparatus] device of claim 13 wherein the [opto-electrical] sensor is not sensitive to the monochromatic light.

15. The [apparatus] device of claim 12 wherein the [opto-electrical] sensor is not sensitive to light in the bandwidth centered about the first frequency.

16. The [apparatus] device of claim 12 wherein the light source is a laser.

17. The [apparatus] device of claim 16 wh rein the laser is a semiconductor laser.

18. The [apparatus] device of claim 16 wherein the [optical] signal generator includes a light emitting diode.

19. The [apparatus] device of claim 12 wherein the light source has a narrow bandwidth.

20. An opto-electric device comprising

a first circuit including a first light source, the first light source periodically changing between an on state and an off state;

a second circuit including a second light source and a photovoltaic cell [configured] to provide energy to at least a portion of the second circuit; and

a [fiber optic line] first optical channel optically coupled to the first and second circuits, light from the first light source being [transmittable] transmitted to the photovoltaic cell over the [fiber optic line] first optical channel, and light from the second light source being [transmittable to] received by the first circuit [over the fiber optic line] when the first light source is in the off state.

22. The device of claim [21] 20, wherein light from the second light source provides feedback to the first circuit regarding a condition in the second circuit.

23. The device of claim [21] 20, wherein the second light source has an on state and an off state and the first circuit includes a detector configured to detect the state of the second light source when the first light source is in the off state.

24. The device of claim 20, wherein light from the first light source has a higher intensity than the light from the second light source.

25. The device of claim 20, further comprising a storage device [and], the photovoltaic cell [provides] providing energy to the storage device.

28. The device of claim 20, further comprising a lens positioned adjacent an end of the [fiber optic line] first optical channel so that light from the first light source passes through the lens prior to reaching the photovoltaic cell.

31. The device of claim 20, wherein the [fiber optic line] first optical channel includes a single fiber optic strand.

32. The device of claim 20, wherein the [fiber optic line] first optical channel includes plural fib r optic strands.

33. An opto-electric device, comprising:

a first circuit including a first light source;

a second circuit including a second light source and a photovoltaic cell [configured] to provide energy to at least a portion of the second circuit; [and]

a first optical channel optically coupled to the first and second circuits, light from the first light source being [transmittable] transmitted to the photovoltaic cell over the first optical channel; and

a second optical channel optically coupled to the first and second circuits, light from the second light source being transmitted over the second optical channel.

35. The device of claim [34] 33, wherein light from the second light source provides feedback to the first circuit regarding a condition in the second circuit.

53. The device of claim 52, wherein the first optical channel further [comprising] comprises an isolation layer interposed between the first and second regions, the isolation layer [preventing] inhibiting optical communication between the first and second regions.

55. The device of claim 53, wherein the isolation layer has an impedance mismatch with the first and second regions [whereby] to inhibit optical communication between the first and second regions [is prevented].

56. The device of claim [53] 52, wherein light from the second light source provides feedback to the first circuit regarding a condition in the second circuit.

57. The device of claim [56] 52, wherein the second circuit further comprises a storage device, [and] the photovoltaic cell [provides] providing energy to the storage device.

60. A method of electrically isolating a remote circuit from a [source circuit] controller, the method comprising the steps of:

[generating] transmitting a first light signal [in the source circuit];

[optically coupling the first light signal to the source circuit so that the remote circuit receives the first light signal from the source circuit;

generating power in the remote circuit from the first light signal received by the remote circuit;]

converting the transmitted first light signal to electrical power only;

powering the remote circuit [by] with the [generated] lectrical power;

converting an electrical output signal from th remote circuit to a second light signal;

[g nerating a] transmitting the second light signal [in th remote circuit];

[and

optically coupling the second light signal to the source circuit so that the source circuit receives the second light signal from the remote circuit]

converting the transmitted second light signal to an electrical input signal for the controller to cause the controller to perform a task corresponding to the remote circuit electrical output signal.

61. The method of claim 60, wherein the electrical power is generated by the first light signal impinging a photovoltaic cell [in the remote circuit].

64. The method of claim 63, wherein the step of [communication] communicating the first and second light signals in half-duplex mode comprises the steps of:

communicating the first light signal according to a duty cycle having an on state and an off state; and

communicating the second light signal during the off state of the duty cycle.

66. The method of claim 65, wherein the step of communicating the first and second light signals in full-duplex mode comprises the steps of:

selecting a first frequency for the first light source;

selecting a second frequency for the second light source, the second frequency [not equal to] being different from the first frequency;

[selecting] providing a photovoltaic cell responsive to the first frequency; and

[selecting] providing an opto-electrical sensor responsive to the second frequency.

67. The method of claim 60, wherein the first light signal is [communicated] transmitted over a first optical channel and the second light signal is [communicated] transmitted over a second optical channel.

68. The method of claim 67, wherein the first and second light signals are [communicated] transmitted in a full-duplex mode.

69. The method of claim 68, further comprising the step of optically shielding the first and second optical channels [whereby] to inhibit optical communication between the first and second optical channels [is prevented].

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